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IAD/OSS - 346/65  
16 November 1965

MEMORANDUM FOR: Assistant for Plans and Development, NPIC

FROM : Chief, Imagery Analysis Division, CIA

SUBJECT : Request for Development Action - Paper Print Viewer/Enlarger

REFERENCE : Memorandum NPIC/P&DS/303-65, Subject: Paper Print  
Enlargements for Photo Interpreter's Use, dated 27 August 1965

1. The Imagery Analysis Division has a current, and growing, need for a means of producing rapid access, "in-house" paper print enlargements. Such a capability should permit the individual P.I. to scan a roll of film, select an area for enlargement, and produce the enlargement, within minutes, directly from the roll of film he is scanning. Such enlargements would be utilized for "quick and dirty" briefings, for working materials, and for division reference materials; without the necessity of calling upon the NPIC Photo Lab. This capability would also be deployed to those sites where the Imagery Analysis Division provides TDY support to other components of the Agency.

2. It is requested that the Plans and Development Staff initiate action to develop a capability as outlined above. The many benefits which are implicit in such a capability as that proposed, would seem to demand a priority approach to the development of the necessary hardware.

3. Design parameters for a rapid access, paper print, viewer/enlarger are as follows:

a. It should be a viewer/enlarger - that is, the device should allow the photo-interpreter to view the proposed enlargement area just as it will appear in paper print form.

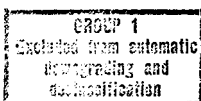
b. Format sizes of film: The viewer/enlarger should be capable of accepting roll film ranging in width from 35mm to 10 inches, on spools of up to 500 foot capacity.

c. Enlargement sizes: The viewer/enlarger should be capable of producing a 20x24 inch print. It would also be desirable to have an alternative capability to produce 11x14 inch prints.

d. Enlargement factors: The viewer/enlarger should be capable of producing a 2X enlargement of the full 10 inch width of the input material;

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with the capability of producing 2-40X enlargements of proportionately smaller areas within the full 10 inch width of the input material. (Thus, a 2X enlargement would encompass a 10x12 inch area of the input material; and a 40X enlargement would encompass a 0.5 x 0.6 inch area located anywhere within the 10 inch width of the input material.) If design and production considerations dictate, the maximum enlargement factor could be reduced to 20X; however, 40X is desirable if possible. Again, subject to the dictates of design and production, it is desirable to have the capability of "zooming" the enlargement factor from 2-40X; however, if this full range is not possible, then steps of 2X, 3X, 4X, 7X, 10X, 15X, 20X, and 40X are desirable.

e. Resolution and Gray Scales: The requirements here are simply to come as close as possible to the quality of enlargements presently produced through conventional processes in the NPIC Photo Lab.

f. Type of Process: The input material will normally be positive transparencies and the output desired would be a positive paper print, similar to a conventional single weight, semi-glossy print. It would be desirable, if feasible, to have the capability to input either positive or negative materials and output either a positive paper print or a positive transparency.

g. Desired printing time: As rapidly as possible, with a practical limit of 5 minutes between exposures. Processing time would not be so critical as the capability to expose and move rapidly on to the next desired exposure; however, processing time should not exceed one hour.

4. It is realized that the design parameters given above cover a wide range, and produce considerable problems for design. If necessary in order to produce a working piece of hardware which will still fit within the walls of our building, it would be acceptable to build two machines each having a more restricted set of design parameters.

a. Machine A: Should accept input materials of 35mm to 10 inch width, in 500 foot rolls; should output a 20x24 inch paper print; should have enlargement factors of 2X, 4X, 5X, 7X, and 10X (enlargement area from 10x12 inches to 2x2.4 inches, located anywhere within the 10 inch width of the input material); and, should use a positive transparency to positive paper print process.

b. Machine B: Should accept input materials of 70mm to 10 inch width, in 500 foot rolls; should output a 20x24 inch paper print (could be reduced to an 11x14 inch output if necessary); should have enlargement factors of 5X, 10X, 15X, 20X, and 40X (enlargement area from 4x4.8 inches

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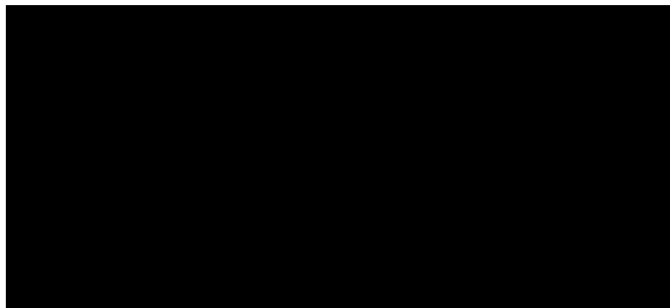
to 0.5 x 0.6 inches, located anywhere within the 10 inch width of the input material); and, should use a positive transparency to positive paper print process.

5. The concept of this viewer/enlarger does not envisage the device as a substitute for the work presently performed by the NPIC Photo Lab; rather, this device would serve as a complement to our present capabilities, allowing both better utilization of P.I. time, and some relaxation of the often short due date work orders sent to the Photo Lab at present.

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